

IN THE CLAIMS

Please replace the claims as filed with the claims set forth below.

1. (Currently Amended) A method for removal of biological nutrients from a wastewater yielding a low phosphorous output comprising:

a) providing a serial multistage bioreactor containing activated sludge ~~having comprising~~ in hydraulic series an anaerobic zone, an upstream aerobic zone, and a downstream aerobic zone and an immersed membrane filter operatively associated with the downstream aerobic zone, each zone having an upstream inlet and a downstream outlet;

b) providing a wastewater to the anaerobic zone inlet;

c) adding a quantity of chemical to precipitate soluble and particulate phosphorous ~~to the downstream aerobic zone in an amount sufficient to yield a low phosphorous output downstream of the upstream aerobic zone and upstream of the immersed membrane filter;~~

d) separating treated water from the activated sludge and precipitated phosphorous by the immersed membrane filter; and

e) recycling return activated sludge separated by the immersed membrane filter from treated water to the anaerobic zone.

2. (Currently Amended) The method of claim 1 ~~wherein~~ wherein step a) further comprises providing a multistage bioreactor having ~~an a downstream~~ anoxic zone in hydraulic series intermediate the ~~anaerobic upstream~~ and downstream aerobic zones and step c) further comprises adding the quantity of chemical downstream of the downstream anoxic zone.

3-6. Canceled.

7. (Currently Amended) The method of claim ~~6 wherein~~ claim 10 further comprising in step ~~d)~~ e) the return activated sludge is first recycled to near an inlet of the upstream aerobic zone and then recycled from near the outlet ~~to of~~ of the upstream aerobic zone to near the inlet of the upstream anoxic zone and from near the outlet of the upstream anoxic zone to the ~~aerobic-anaerobic~~ anaerobic zone.

8. (Original) The method of claim 1 wherein in step c) the low phosphorous output is less than 0.25 mg/L.
9. (Original) The method of claim 1 wherein in step c) the low phosphorous output is less than 0.1 mg/L.
10. (New) The method of claim 1 wherein step a) further comprises providing an upstream anoxic zone in hydraulic series intermediate the anaerobic zone and the upstream aerobic zone.
11. (New) The method of claim 10 further comprising in step e) recycling return activated sludge from near the upstream aerobic zone outlet to near the upstream anoxic zone inlet and recycling return activated sludge from near the upstream anoxic zone outlet to near the anaerobic zone inlet.
12. (New) The method of claim 1 further comprising in step c) adding the quantity of chemical to the downstream aerobic zone.
13. (New) The method of claim 2 further comprising in step c) adding the quantity of chemical to the downstream aerobic zone.
14. (New) The method of claim 1 wherein the immersed membrane filter is in the downstream aerobic zone.
15. (New) An apparatus for removal of biological nutrients from a wastewater comprising:
a serial multistage reactor configured to contain activated sludge comprising in hydraulic series an anaerobic zone, an upstream aerobic zone and a downstream aerobic zone, each zone having an upstream inlet and a downstream outlet;
an immersed membrane filter operatively associated with the downstream aerobic zone;
and

means for adding a quantity of chemical to precipitate soluble and particulate phosphorus downstream of the upstream aerobic zone and upstream of the immersed membrane filter.

16. (New) The apparatus of claim 15 further comprising an upstream anoxic zone in hydraulic series intermediate the anaerobic zone and the upstream aerobic zone.

17. (New) The apparatus of claim 16 further comprising a downstream anoxic zone in hydraulic series intermediate the upstream and downstream aerobic zones and the chemical adding means is configured to add the quantity of chemical downstream of the downstream anoxic zone.

18. (New) The apparatus of claim 15 further comprising the chemical adding means being configured to add chemical to the downstream aerobic zone.

19. (New) The apparatus of claim 15 wherein the immersed membrane filter is in the downstream anaerobic zone.